

PORTABLE EXERCISE APPARATUS

Background of the Invention

1. Technical Field

The present invention relates to an apparatus and associated method to exercise.

2. Related Art

Exercising typically requires time taken from other activities. Accordingly, there is a need to provide a means to exercise without taking time from other activities.

Summary of the Invention

The present invention provides a portable exercise apparatus comprising:

a body support structure comprising a sitting structure pivotally attached to a back support structure, wherein the back support structure is adapted to be positioned at a plurality of angular positions with respect to the sitting structure, and wherein the body support structure is adapted to be placed on a supporting structure; and

at least one exercising structure adapted to be removably attached to the body support structure, wherein the at least one exercising structure comprises a first resilient structure movably attached to a second resilient structure, a first attachment device, and a resistance means for applying a preset amount of resistance against movement of the first resilient structure with respect to the second resilient structure, wherein the attachment device is adapted to removably attach the second resilient structure to the body support structure, and wherein the portable

exercise apparatus is portable with respect to the supporting structure.

The present invention provides a method for exercising comprising:

providing a portable exercise apparatus comprising: a body support structure and at least one exercising structure, wherein the support structure comprises a sitting structure pivotally attached to a back support structure, wherein the back support structure is adapted to be positioned at a plurality of angular positions with respect to the sitting structure, wherein the at least one exercising structure comprises a first resilient structure movably attached to a second resilient structure, a first attachment device, and a resistance means for applying a preset amount of resistance against movement of the first resilient structure with respect to the second resilient structure;

placing the body support structure on a supporting structure, wherein the portable exercise structure is portable with respect to the supporting structure;

removably attaching by the first attachment device, the at least one exercising structure to the body support structure; and

moving against a preset amount of resistance provided by the resistance means, the first resilient structure with respect to the second resilient structure.

The present invention advantageously provides a structure and associated method to exercise without taking time from other activities.

Brief Description of the Drawings

FIG. 1 illustrates a three dimensional view of a portable exercise apparatus comprising a

body support structure and a plurality of removably attachable exercising structures, in accordance with embodiments of the present invention.

FIG. 2 illustrates a side view of an alternative embodiment for the portable exercise apparatus of FIG. 1, in accordance with embodiments of the present invention.

5 FIG. 3 illustrates a front view of an alternative embodiment for the portable exercise apparatus of FIG. 2, in accordance with embodiments of the present invention.

FIG. 4 illustrates an exploded view of the body support structure of FIGS. 1-3 without the removably attachable exercising structures attached, in accordance with embodiments of the present invention.

10 FIG. 5 illustrates a three dimensional view of the of a first removably attachable exercising structure of FIG. 1 , in accordance with embodiments of the present invention.

FIG. 6 illustrates a three dimensional view of the of the removably attachable armrest structure comprising a second exercising structure of FIG. 1, in accordance with embodiments of the present invention.

15 FIG. 7 illustrates a three dimensional view of the of a third removably attachable exercising structure of FIG. 1 , in accordance with embodiments of the present invention.

FIG. 8 illustrates a three dimensional view of the of a forth removably attachable exercising structure of FIG. 1 , in accordance with embodiments of the present invention.

20 FIG. 9 illustrates a side view of a fifth removably attachable exercising structure of FIG. 1, in accordance with embodiments of the present invention.

FIG. 10 illustrates a front view of the of a sixth removably attachable exercising structure of FIG. 1 , in accordance with embodiments of the present invention.

FIG. 11 illustrates a person in a sitting position using the removably attachable exercising structures and of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention.

FIG. 12 illustrates a modified use for FIG. 11, in accordance with embodiments of the present invention.

FIG. 13 illustrates a person in a sitting position using the exercising structures of FIGS. 1 and 6 to exercise, in accordance with embodiments of the present invention.

FIG. 14 illustrates a person in a sitting position using the exercising structures of FIGS. 1 and 7 to exercise, in accordance with embodiments of the present invention.

FIG. 15 illustrates a person in a sitting position using the exercising structure of FIGS. 1 and 8 to exercise, in accordance with embodiments of the present invention.

FIG. 16 illustrates a person in a sitting position using the exercising structure of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention.

FIG. 17 illustrates a modified use for FIG. 16, in accordance with embodiments of the present invention.

FIG. 18 illustrates a person in a lie down position using the exercising structures of FIGS. 1 and 7 to exercise, in accordance with embodiments of the present invention.

FIG. 19 illustrates a modified use of FIG. 11, in accordance with embodiments of the present invention.

FIG. 20 illustrates a person in a lie down position using the exercising structure of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention.

FIG. 21 illustrates a person in a lie down position using the exercising structure of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention.

FIG. 22 illustrates a person in a lie down position using the exercising structures of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention.

Detailed Description of the Invention

FIG. 1 illustrates a three dimensional view of a portable exercise apparatus 2 comprising a body support structure 4 and removably attachable exercising structures 19, 20, 28, 29, 30, 31, 32 and 43, in accordance with embodiments of the present invention. The body support structure 4 comprises a sitting structure 8 pivotally attached to a back support structure 10. The sitting structure 8 is pivotally attached to a back support structure 10 using a pivot device 68 (see FIG. 4). The pivot device 68 may be any pivot device known to a person of ordinary skill in the art such as, *inter alia*, a hinge(s), a piano hinge, etc. The back support structure 10 may be positioned at a plurality of angular positions with respect to the sitting structure 8. The body support structure 4 is adapted be placed on a supporting structure 14 during exercising (i.e., using the attachable exercising structures 19, 20, 28, 29, 30, 31, 32, and 43). Note that although the supporting structure 14 illustrated in FIG. 1 is a couch, the supporting structure 14 may be any supporting structure known to a person of ordinary skill in the art such as, *inter alia*, a chair, an automobile seat, a wheel chair, a bed, a hospital bed, a hotel bed, etc. The back support structure

10 is positioned at an angular position with respect to the sitting structure 8 that follows an angular position of the supporting structure 14. For example, a backrest 16 of the supporting structure 14 is positioned at an angular position of about 90° with respect to a seat 17 of the supporting structure 14 so the back support structure 10 is positioned at an angular position of about 90° with respect to the sitting structure 8 when the body support structure 4 is placed on the supporting structure 14 to ensure a proper fit. Alternatively, the supporting structure 14 may be a ground surface (e.g., a floor, a carpeted floor, etc) and the body support structure 4 may be placed on the ground surface (e.g., as shown in FIGS. 18-22) . The back support structure 10 may be positioned at an angular position of about 180° with respect to the sitting structure 8 when the body support structure 4 is placed on a ground surface (e.g., as shown in FIGS. 18-22) so that a user (e.g., person 145 in FIGS. 18-22) may lay down on the body support structure 4 while exercising (i.e., using the removably attachable exercising structures 19, 20, 28, 29, 30, 31, 32, and 43). The body support structure 4 may be folded (e.g., place the back support structure 10 about parallel to the sitting structure 8 with an angle of about 0° between the back support structure 10 and the sitting structure 8) for storage. The removably attachable exercising structures include, *inter alia*, exercising structures 19, 20, 28, 29, 30, 31, and 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43. The term “removably attached ” is defined herein and including in the claims as a temporary attachment of a first structure (e.g., exercising structures 19, 20, 28, 29, 30, 31, and 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43) to a second structure (e.g. body support structure 4) during an overall use of said structures (e.g., exercising with the portable exercise apparatus 2). The removably attachable exercising structures 19, 20, 28, 29, 30, 31, and 32, 33

(see FIG. 2), **34** (see FIG. 3), and **43** may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, leg muscles, etc. The body support structure **4** additionally comprises elongated members **21**, **22**, **23**, **26**, and **27** mechanically attached. The removably attachable exercising structure **19** is removably attached to the elongated member **22**.

5 The removably attachable exercising structure **20** is removably attached to the elongated member **21**. The removably attachable exercising structure **30** is removably attached to the elongated member **23**. An armrest structure **24** comprising the exercising structure **31** is removably attached to the elongated member **27**. An armrest structure **25** comprising the exercising structure **32** is removably attached to the elongated member **26**. The removably attachable

10 exercising structures **19**, **20**, and **30** and the armrest structures **24** and **25** are removably attached to the elongated members **21**, **22**, **23**, **26**, and **27** using fastening devices **40** and/or **41**. The fastening devices **40** and **41** may be any fastening devices known to a person of ordinary skill in the art including, *inter alia*, screws, bolts, eye bolts, locking pins, etc. The locking pins may include, *inter alia*, positive locking pins, ball lock pins, wire lock pins, locking cotters, etc.

15 Additionally, the portable exercise structure **2** may comprise a frame structure **35** removably attached to the elongated members **21** and **22**. The frame structure **35** may be used for isometric exercises. The frame structure **35** is removably attached to the elongated members **21** and **22** using fastening devices **40** and/or **41**. The removably attachable exercising structure **43** is pivotally attached to the frame structure **35**. The elongated members **21**, **22**, **26**, and **27** and the

20 frame structure **35** each comprise a plurality of hooking devices **42**. The exercising structures **28** and **29** each comprise a latching device **44** that is used to removably attach the exercising

structures 28 and 29 to each of the plurality of hooking devices 42 on each of the elongated members 21, 22, 26, and 27 and the frame structure 35. Each of the plurality of hooking devices may be any hooking device known to a person of ordinary skill in the art including, *inter alia*, eye bolts, hooks, etc. The latching device 44 may be any latching device known to a person of ordinary skill in the art such as, *inter alia*, a bolt snap, a trigger snap, a spring snap, a breeching snap, a carabiner, etc. Each of the exercising structures 19, 20, 28, 29, 30, 31, and 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43 comprises a resistance means (e.g., resistance means 36 and 37) to apply a preset amount of resistance against movement of resilient structure(s) comprised by each of said exercising structures 19, 20, 28, 29, 30, 31, and 32, 33 (see FIG. 2), and 34 (see FIG. 3), and 43. The term “resistance means” is defined herein and including in the claims as a structure to apply resistance against movement of resilient structure(s) and may include, *inter alia*, a spring(s), an elastic band(s), a resistance band(s), a pneumatic resistance device, a hydraulic resistance device, etc. For example, the exercising structure 20 comprises a resilient structure 38 movably attached to a resilient structure 39. The resistance means 36 applies a preset amount of resistance against movement of the resilient structure 38 with respect to the resilient structure 39. The resilient structure 38 is engaged by a users limb (e.g, an arm, a leg, etc.). The resistance means 36 may comprise any resistance means known to a person of ordinary skill in the art including, *inter alia*, a spring(s), an elastic band(s), a resistance band(s), a pneumatic resistance device, a hydraulic resistance device, etc. Each of the exercising structures 19, 20, 28, 29, 30, 31, 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43 are adapted to be engaged by a users limb (e.g, an arm, a leg, etc.). The portable exercise apparatus 2 may additionally comprise

at least one resistance band 45 and an accessory holding structure 46. The at least one resistance band 45 is adapted to be engaged by a users limb (e.g, an arm, a leg, etc.) to apply a preset amount of resistance against movement of the users limb during exercising. The at least one resistance band 45 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, leg muscles, etc. The resistance band may be any resistance band known to a person of ordinary skill in the art including, *inter alia*, an elastic band comprising rubber. The at least one resistance band 45 comprises a latching device 47 that is used to removably attach the at least one resistance band 45 to each of the plurality of hooking devices 42 on each of the elongated members 21, 22, 26, and 27 and the frame structure 35. The latching device 47 may be any latching device known to a person of ordinary skill in the art such as, *inter alia*, a bolt snap, a trigger snap, a spring snap, a breeching snap, a carabiner, etc. The accessory holding structure 46 may be removably attached to any the elongated members 21, 22, 23, 26, and 27 or either of the armrest structures 24 or 25 using the fastening devices 40 and/or 41. The accessory holding structure 46 comprises structures 47, 48, 49, and 50. Structure 47 is a mouse pad for using a computer mouse. Structures 48, 49, and 50 are holding structures for holding accessories such as, *inter alia*, a glass, cup, or mug, a remote control (for T.V., VCR, DVD player, stereo equipment, etc.), a telephone (cordless, cellular, etc.), etc. A strapping structure 57 may be removably attached to either the back support 10 (as shown in FIG. 1) or sitting structure 8. The strapping structure 57 is adapted to strap or hold a user in a specific position during exercising. Note that the exercising structures 19, 20, 28, 29, 30, 31, 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43 are shown in their respective locations on the body support structure 4 for

illustration purposes only and that the exercising structures 19, 20, 28, 29, 30, 31, 32, 33 (see FIG. 2), 34 (see FIG. 3), and 43 may be placed at any location on the body support structure 4.

FIG. 2 illustrates a side view of the portable exercise apparatus 2 of FIG. 1 additionally comprising a removably attachable exercising structure 33, in accordance with embodiments of the present invention. In contrast with FIG. 1, FIG. 2 shows the portable exercise apparatus 2 with the removably attachable exercising structure 30 removed and replaced by the removably attachable exercising structure 33. The removably attachable exercising structured 33 is removably attached to the elongated member 23 using fastening devices 40 and/or 41. The portable exercise apparatus 2 of FIG. 2 is shown with the exercising structures 19, 20, 28, 29, 30, 31, 32 removed.

FIG. 3 illustrates a front view of the portable exercise apparatus 2 of FIG. 2 additionally comprising a removably attachable exercising structure 34, in accordance with embodiments of the present invention. In contrast with FIG. 2, FIG. 3 shows the portable exercise apparatus 2 with the removably attachable exercising structure 33 removed and replaced by the removably attachable exercising structure 34. The removably attachable exercising structured 34 is removably attached to the elongated member 23 using fastening devices 40 and/or 41.

FIG. 4 illustrates an exploded view of the body support structure 4 of FIGS. 1-3 without any of the removably attachable exercising structures 19, 20, 28, 29, 30, 31, 32, 33, and 34 attached, in accordance with embodiments of the present invention. As described, *infra*, in the description of FIG. 1, the body support structure 4 comprises a sitting structure 8 pivotally attached to a back support structure 10. The sitting structure 8 is pivotally attached to a back

support structure 10 using a pivot device 68. The pivot device 68 any pivot device known to a person of ordinary skill in the art such as, *inter alia*, a hinge(s), a piano hinge, etc. The sitting structure 8 comprises a substantially flat structure 55 mounted on a front side 70 of the frame 58, a substantially flat structure 64 mounted on a back side 71 of the frame 58, and the elongated members 23, 26 and 27. Each of the substantially flat structures 55 and 64 may comprise a material such as, *inter alia*, wood, metal, plastic, etc. The frame 58 and the elongated members 23, 26 and 27 may each comprise a material such as, *inter alia*, wood, metal, plastic, etc. The sitting structure 8 may additionally comprise a padding structure 53 covering the substantially flat structure 55 and a padding structure 76 covering the substantially flat structure 64. The padding structure 53 may comprise padding material covered by cover material. The padding structure 76 may comprise padding material covered by cover material. The padding material may be any padding material know to a person of ordinary skill in the art including, *inter alia*, foam, felt, feathers, polyester, rubber, etc. The cover material may be any cover material know to a person of ordinary skill in the art include, *inter alia*, fabric, rubber, plastic, vinyl, etc. The back support structure 10 comprises a substantially flat structure 60 mounted on a front side 77 of a frame 59, a substantially flat structure 65 mounted on a back side 78 of the frame 59, and the elongated members 21 and 22. Each of the substantially flat structures 60 and 65 may comprise a material such as, *inter alia*, wood, metal, plastic, etc. The frame 59 and the elongated members 21 and 22 may each comprise a material such as, *inter alia*, wood, metal, plastic, etc. The back support structure 10 may additionally comprise a padding structure 52 covering the substantially flat structure 60 and a padding structure 83 covering the substantially flat structure 65. The

padding structure 52 may comprise padding material covered by a cover material. The padding structure 83 may comprise padding material covered by cover material . The padding material may comprise any padding material know to a person of ordinary skill in the art including, *inter alia*, foam, felt, feathers, polyester, rubber, etc. The cover material may include a material such as, *inter alia*, fabric, rubber, plastic, vinyl, etc.

FIG. 5 illustrates a three dimensional view of the removably attachable exercising structure 19 of FIG. 1 , in accordance with embodiments of the present invention. The following description of the removably attachable exercising structure 19 also applies to the removably attachable exercising structure 20 of FIG. 1. The removably attachable exercising structure 19 comprises a resilient structure 89 rotatably attached to a resilient structure 90, a resistance means 37, and an attachment device 91. The resistance means 37 applies a preset amount of resistance against movement of the resilient structure 89 with respect to the resilient structure 90. The resistance means 37 comprises a tubular member 87 slidably attached to a tubular member 88, a spring 86 located inside the tubular member 88, and an attachment device 91. The spring 86 applies a preset amount of resistance against movement of the tubular member 87 with respect to the tubular member 88 thereby applying the preset amount of resistance against movement of the resilient structure 89 with respect to the resilient structure 90. The attachment device 91 is adapted to removably attach the removably attachable exercising structure 19 to the body support structure 4 (i.e., elongated member 22) of FIG. 1. The removably attachable exercising structure 19 may additionally comprise an adjustable extension device 94 mechanically attached to the resilient structure 89. The adjustable extension device 94 comprises a tubular member 92

adjustably and slidably attached to a tubular member 93. The tubular member 92 may additionally comprise padding 95.

FIG. 6 illustrates a three dimensional view of the removably attachable armrest structure 25 comprising the exercising structure 32 of FIG. 1, in accordance with embodiments of the

5 present invention. The following description of the removably attachable armrest structure 25 also applies to the removably attachable armrest structure 24 comprising the exercising structure

31 of FIG. 1. The armrest structure 25 is removably attached to the elongated member 26 (see FIG. 1). The armrest structure 25 comprises the exercising structure 32, a resistance means 96,

an armrest 98, and an attachment device 97. The exercising structure 32 is pivotally attached to the armrest 98. The resistance means 96 applies a preset amount of resistance against movement

10 of the exercising structure 32 with respect to the armrest 98. The resistance means 37 comprises springs 103 and 99. The resistance means 37 may alternatively comprise, *inter alia*, one spring,

a plurality of springs, a resistance band, a pneumatic resistance device, a hydraulic resistance device, etc. The attachment device 97 is adapted to removably attach the armrest structure 25 to

15 the body support structure 4 (e.g., elongated member 26) of FIG. 1. The armrest 98 may additionally comprise padding 100.

FIG. 7 illustrates a three dimensional view of the removably attachable exercising structure 28 of FIG. 1, in accordance with embodiments of the present invention. The following

description of the removably attachable exercising structure 28 also applies to the removably attachable exercising structure 29 of FIG. 1. The removably attachable exercising structure 28

20 comprises a tubular member 101 slidably attached to a tubular member 102, a resistance means

104, and a latching device 44. The resistance means 104 applies a preset amount of resistance against movement of the tubular member 101 with respect to the tubular member 102. The resistance means 104 comprises a spring. The resistance means 104 may alternatively comprise any resistance means known to a person of ordinary skill in the art including, *inter alia*, an elastic
5 band(s), a resistance band, a pneumatic resistance device, a hydraulic resistance device, a pneumatic resistance device, a hydraulic resistance device, etc. The latching device 44 is adapted to removably attach the removably attachable exercising structure 28 to the body support structure 4 (i.e., any of the plurality of hooking devices 42 on each of the elongated members 21, 22, 26, and 27 and the frame structure 35) of FIG. 1. The latching device 44 may be any latching
10 device known to a person of ordinary skill in the art such as, *inter alia*, a bolt snap, a trigger snap, a spring snap, a breeching snap, a carabineer, etc. The tubular member 101 may additionally comprise padding 106.

FIG. 8 illustrates a three dimensional view of the removably attachable exercising structure 30 of FIG. 1, in accordance with embodiments of the present invention. The
15 removably attachable exercising structure 30 comprises a tubular member 108 and a tubular member 109 each pivotally attached to an attachment structure 114 and a resistance means 111. The resistance means 111 applies a preset amount of resistance against movement of the tubular member 108 and the tubular member 109 with respect to each other. The resistance means 111 comprises a spring. The resistance means 111 may alternatively comprise any resistance means
20 known to a person of ordinary skill in the art including, *inter alia*, an elastic band(s), a resistance band, a pneumatic resistance device, a hydraulic resistance device, etc. The attachment structure

114 is adapted to removably attach the removably attachable exercising structure 30 to the body support structure 4 (e.g., elongated member 23) of FIG. 1. The tubular member 108 may additionally comprise padding 116. The tubular member 109 may additionally comprise padding 117.

5 FIG. 9 illustrates a side view of the of the removably attachable exercising structure 33 of FIG. 2 , in accordance with embodiments of the present invention. The removably attachable exercising structure 33 comprises a structure 120 pivotally attached to an attachment structure 127 and a resistance means 129. The resistance means 129 applies a preset amount of resistance against movement of the structure 120. The resistance means 129
10 comprises a spring. The resistance means 129 may alternatively comprise any resistance means known to a person of ordinary skill in the art including, *inter alia*, an elastic band(s), a resistance band, a pneumatic resistance device, a hydraulic resistance device, etc. The removably attachable exercising structure 33 may additionally comprise a second structure and second resistance means equivalent to the structure 120 and the resistance means 129. The attachment
15 structure 127 is adapted to removably attach the removably attachable exercising structure 33 to the body support structure 4 (e.g., elongated member 23) of FIG. 2. The removably attachable exercising structure 33 may additionally comprise wheels 125.

 FIG. 10 illustrates a front view of the of the removably attachable exercising structure 34 of FIG. 3, in accordance with embodiments of the present invention. The removably
20 attachable exercising structure 34 a spring 135 pivotally attaching a tubular structure 132 to a tubular structure 133, a tubular structure 137 perpendicularly attached to the tubular structure

132, and an attachment structure 131. The spring 135 is adapted to apply a preset amount of resistance against movement of the tubular structure 132 with respect to the tubular structure 133. The attachment structure 131 is adapted to removably attach the removably attachable exercising structure 34 to the body support structure 4 (e.g., elongated member 23) of FIG. 3.

5 The tubular structure 137 may additionally comprise padding 138 and 139. Alternatively, tubular structure 137 may be removed from the tubular structure 132 for one handed exercising (see FIG. 15).

FIGS. 11-22 illustrate the portable exercise apparatus 2 of FIGS. 1-3 in use showing examples of a person 145 using the exercising structures 19, 20, 28, 29, 30, 31, and 32, 33, 34, and 43 of FIGS. 1-10 to exercise, in accordance with embodiments of the present invention. FIGS. 11-17 show the body support structure 4 placed on a sitting means 14. FIGS. 18-22 show the body support structure 4 placed on a ground surface. Note that the examples shown in FIGS. 11-22 are for illustration purposes and that various other exercises may be accomplished using the portable exercise apparatus 2 with the exercising structures 19, 20, 28, 29, 30, 31, and 32, 33, 34, and 43.

FIG. 11 illustrates a person 145 in a sitting position using the exercising structures 19 and 20 of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention. The person 145 is shown using a hand 152 to secure and move the resilient structure 89 in a direction 148 against the preset amount of resistance supplied by the resistance means 37. Concurrently, the person 145 is shown using a hand 150 to secure and move the resilient structure 153 in a direction 147 against the preset amount of resistance supplied by the resistance means 155. The

exercise shown in FIG. 11 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, etc.

FIG. 12 illustrates a modified use of FIG. 11 showing the person **145** in a sitting position using the exercising structures **19** and **20** of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention. The person **145** is shown using the hand **152** to secure the adjustable extension device **94** to move the resilient structure **89** in the direction **148** against the preset amount of resistance supplied by the resistance means **37**. Concurrently, the person **145** is shown using a hand **150** to secure the adjustable extension device **160** to move the resilient structure **153** in the direction **147** against the preset amount of resistance supplied by the resistance means **155**. The exercise shown in FIG. 12 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, etc.

FIG. 13 illustrates a person **145** in a sitting position using the exercising structures **31** and **32** of FIGS. 1 and 6 to exercise, in accordance with embodiments of the present invention. The person **145** is shown using a hand **152** to secure and move the resilient structure **32** in a direction **170** against the preset amount of resistance supplied by the resistance means **96**. Concurrently, the person **145** is shown using a hand **150** to secure and move the resilient structure **31** in the direction **170** against the preset amount of resistance supplied by the resistance means **172**. The exercise shown in FIG. 13 may be used to strengthen, *inter alia*, arm muscles, etc.

FIG. 14 illustrates a person **145** in a sitting position using the exercising structures **28** and **29** of FIGS. 1 and 7 to exercise, in accordance with embodiments of the present invention. The person **145** is shown using a hand **152** to secure and move the resilient structure **101** in a

direction 172 against the preset amount of resistance supplied by the resistance means 104.

Concurrently, the person 145 is shown using a hand 150 to secure and move the resilient structure 174 in a direction 173. against the preset amount of resistance supplied by the resistance means 177. The exercise shown in FIG. 14 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, etc.

FIG. 15 illustrates a person 145 in a sitting position using the exercising structure 30 of FIGS. 1 and 8 to exercise, in accordance with embodiments of the present invention. The person 145 is shown using a leg 179 to move the tubular member 108 in a direction 181 against the preset amount of resistance supplied by the resistance means 111. Concurrently, the person 145 is shown using a leg 180 to move the tubular member 109 in a direction 182 against the preset amount of resistance supplied by the resistance means 111. The exercise shown in FIG. 15 may be used to strengthen, *inter alia*, leg muscles, etc.

FIG. 16 illustrates a person 145 in a sitting position using the exercising structure 34 of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention. The person 145 is shown using a hand 152 and a hand 150 to secure the tubular structure 137 to move the tubular structure 132 in a direction 184 against the preset amount of resistance supplied by the resistance means 135. Note that the tubular structure 132 may be moved in any direction with respect to the tubular structure 133. The exercise shown in FIG. 16 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, etc.

FIG. 17 illustrates a modified use of FIG. 16 showing the person 145 in a sitting position using the exercising structure 34 to exercise, in accordance with embodiments of the present

invention. In contrast to FIG. 16, the tubular structure 137 has been removed. The person 145 is shown using the hand 150 to secure and move the tubular structure 132 in a direction 187 against the preset amount of resistance supplied by the resistance means 135. Alternatively, the person 145 may use the hand 152 to secure and move the tubular structure 132 against the preset amount of resistance supplied by the resistance means 135. Note that the tubular structure 132 may be moved in any direction with respect to the tubular structure 133. The exercise shown in FIG. 17 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, etc.

FIG. 18 illustrates a person 145 in a lie down position using the exercising structure 28 of FIGS. 1 and 7 to exercise, in accordance with embodiments of the present invention. The following description of exercising with the removably attachable exercising structure 28 also applies to exercising with the removably attachable exercising structure 29 of FIG. 1 (exercising simultaneously with a second hand (e.g., hand 150)). The person 145 is shown using a hand 152 to secure and move the resilient structure 101 in a direction 195 against the preset amount of resistance supplied by the resistance means 104. The exercise shown in FIG. 18 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, etc.

FIG. 19 illustrates a modified use of FIG. 11 showing a person 145 in a lie down position using the exercising structure 20 of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention. The following description of exercising with the removably attachable exercising structure 20 also applies to exercising with the removably attachable exercising structure 19 of FIG. 1 (exercising simultaneously and in an opposite direction (i.e., opposite to

direction 198) with a second hand (e.g., hand 150)). The person 145 is shown using the hand 152 to secure the adjustable extension device 94 to move the resilient structure 89 in the direction 198 against the preset amount of resistance supplied by the resistance means 37. The exercise shown in FIG. 19 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, etc.

FIG. 20 illustrates a person 145 in a lie down position using the exercising structure 34 of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention. The person 145 is shown using a hand 152 (hand 150 may simultaneously be used) to secure the tubular structure 137 to move the tubular structure 132 in a direction 184 against the preset amount of resistance supplied by the resistance means 135. Note that the tubular structure 132 may be moved in any direction with respect to the tubular structure 133. The exercise shown in FIG. 16 may be used to strengthen, *inter alia*, arm muscles, chest muscles, back muscles, shoulder muscles, etc.

FIG. 21 illustrates a person 145 in a lie down position using the exercising structure 34 of FIGS. 1 and 10 to exercise, in accordance with embodiments of the present invention. The person 145 is shown using a leg 180 (a second leg may alternatively be used) to move the tubular structure 132 in a direction 202 against the preset amount of resistance supplied by the resistance means 135. Note that the tubular structure 132 may be moved by either leg 180 or leg 179 and in any direction with respect to the tubular structure 133. The exercise shown in FIG. 21 may be used to strengthen, *inter alia*, leg muscles, etc.

FIG. 22 illustrates a person 145 in a lie down position using the exercising structures 19

and 20 of FIGS. 1 and 5 to exercise, in accordance with embodiments of the present invention.

The following description of exercising with the removably attachable exercising structure 20

also applies to exercising with the removably attachable exercising structure 19 of FIG. 1

(exercising simultaneously and in an opposite direction (i.e., opposite to direction 212) with a

second leg). The person 145 is shown using a leg 180 to secure the adjustable extension device

94 to move the resilient structure 89 in the direction 210 against the preset amount of resistance

supplied by the resistance means 37. Concurrently, the person 145 is shown using a leg 179 to

secure the adjustable extension device 160 to move the resilient structure 153 in the direction 212

against the preset amount of resistance supplied by the resistance means 155. The exercise

shown in FIG. 12 may be used to strengthen, *inter alia*, leg muscles, etc.

The portable exercise apparatus 2 (see FIGS. 1-22) of the present invention allows a person (e.g., person 145 of FIGS. 11-22) to exercise in many different locations including, *inter alia*, any room in a home, an automobile, a hospital, a hotel, etc. Additionally, the person may, *inter alia*, watch T.V., use a computer, talk on a telephone, etc. while exercising with the

portable exercise apparatus 2. After an exercising routine is completed the person may remove

any of the exercising structures 19, 20, 28, 29, 30, 31, 32, 33, 34, and 43 from the body support

structure 4, remove the body support structure 4 from the support structure 14, fold the body

support structure 4 (e.g., place the back support structure 10 about parallel to the sitting structure

8 with an angle of about 0° between the back support structure 10 and the sitting structure 8), and

place the exercising structures 19, 20, 28, 29, 30, 31, 32, 33, 34, and 43 and the folded the body

support structure 4 into a storage area (e.g., a closet) until the person 145 is ready to use the

portable exercise apparatus **2** again. Thus, the portable exercise apparatus **2** is portable with respect to the support structure **14** because the portable exercise apparatus **2** can be readily removed from the support structure **14** and stored or transported easily to any desired location (e.g., any room in a home, an automobile, hotel room, hospital, etc.).

5 While embodiments of the present invention have been described herein for purposes of illustration, many modifications and changes will become apparent to those skilled in the art. Accordingly, the appended claims are intended to encompass all such modifications and changes as fall within the true spirit and scope of this invention.